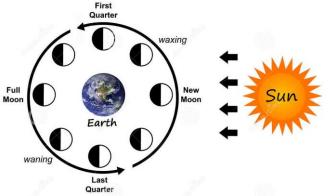
#### SCIENCE, TECHNOLOGY, ENGINEERING & MATH



# LIGHT and DARK (3-5)

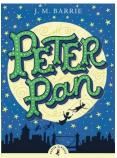
#### The SCIENCE of SHADOWS:

- **Shadows** are the dark figures cast upon a surface when light is blocked.
- To create a shadow, and object must be **between** the light source and its shadow.
- The **phases of the moon** are NOT caused by the earth's shadow. A **lunar eclipse** IS caused by the earth's shadow when earth passes *between* the moon and sun.



 The moon is waxing when we can see more of it. Waning occurs when the moon is getting darker, and we see less of it.

### LITERACY CONNECTION:



The adventures of <u>Peter Pan</u> have been told through books, plays and movies since 1904. J.M. Barrie's tale of the boy who never grew up begins when he loses something – his shadow!

Don't have the book at home? Visit the Open Library for access to various digital versions.

## **ACTIVITY: EXPERIMENTING with SHADOWS**

Materials: paper, scissors, tape, pencil/stick, flashlight

1. Draw a simple shape (circle, triangle, heart) on the paper and cut it out.

**TIP**: The shape should be about the size of a sticky note

- 2. Place shape near the top of a pencil, and attach it with tape.
- 3. Shine the flashlight on the paper shape do you see the shadow?
- 4. How do you make the shadow bigger or smaller? Can you change the shadow's shape?

What is happening? The absence of light creates a shadow, but shadows are not exact copies of the object blocking the light. <u>Shadows change</u> depending on the strength and direction of the light source.

**EXPLORE**: Go outside with your shape, pencil and a fresh piece of paper. Put the stick in the ground and find the best place to trace the shadow. Go out again at a different time of day and trace it again – are the shadows the same? Bring out other objects and experiment with the different shapes!



For step-by-step instructions, watch the video at: Shadow STEM Activity

This at-home educational activity is from the Literacy Coalition of Palm Beach County's literacy-based Stories & STEM program. Stories & STEM is made possible with support from Prime Time Palm Beach County, Inc., which receives significant funding from the Children's Services Council of Palm Beach County, Inc.

Having fun? Send pictures or video links of you and your Stores & STEM projects to csharkey@literacypbc.org